

CLAIMS

1. A battery, comprising:
a housing;
an anode in the housing;
a cathode in the housing; and
a separator between the cathode and the anode;
the housing having a surface adjacent to the cathode, the surface defining an opening
adapted to facilitate a generally non-circular flux of gas on a portion of the cathode,
wherein the opening is not a louver.

2. The battery of claim 1, wherein the flux of gas is generally oval.

3. The battery of claim 1, wherein the flux of gas is generally curvilinear.

4. The battery of claim 1, wherein the surface defines openings adapted to
facilitate, in combination, the generally non-circular flux of gas.

5. The battery of claim 4, wherein the openings are circular.

6. The battery of claim 4, wherein the openings are elongated.

7. The battery of claim 1, wherein the opening is elongated.

8. The battery of claim 7, wherein the opening is generally straight.

9. The battery of claim 7, wherein the opening is curved.

10. The battery of claim 1, wherein the surface defines openings symmetrically
positioned in the housing.

11. The battery of claim 1, wherein the battery is a metal-air battery.

12. The battery of claim 1, wherein the battery is a button cell.

1 13. The battery of claim 1, wherein the battery is a prismatic battery.

1 14. A battery, comprising:

2 a housing;

3 an anode in the housing;

4 a cathode in the housing; and

5 a separator between the cathode and the anode;

6 the housing having a surface adjacent to the cathode, the surface defining an opening

7 having an aspect ratio greater than 1,

8 wherein the opening is not a louver.

15. The battery of claim 14, wherein the aspect ratio is between about 3:2 and about 400:1.

16. The battery of claim 14, wherein the aspect ratio is between about 5:1 and about 50:1.

1 17. The battery of claim 14, wherein the aspect ratio is between about 15:1 and
2 about 30:1.

1 18. The battery of claim 14, wherein the aspect ratio is between about 18:1 and
2 about 26:1.

1 19. A battery, comprising:

2 a housing;

3 an anode in the housing;

4 a cathode in the housing; and

5 a separator between the cathode and the anode;

6 the housing having a surface adjacent to the cathode, the surface defining an

7 elongated opening,

8 wherein the opening is not a louver.

1 20. The battery of claim 19, wherein the opening is substantially rectangular.

1 21. The battery of claim 19, wherein the opening has a width between about
2 0.005mm and about 0.50mm.

1 22. The battery of claim 19, wherein the opening has a width between about
2 0.02mm and about 0.16mm.

1 23. The battery of claim 19, wherein the opening has a width between about
2 0.04mm and about 0.08mm.

1 24. The battery of claim 19, wherein the opening has a length between about
2 0.05mm and about 20.00mm.

1 25. The battery of claim 19, wherein the opening has a length between about
2 0.20mm and about 4.00mm.

1 26. The battery of claim 19, wherein the opening has a length between about
2 0.60mm and about 1.20mm.

1 27. The battery of claim 19, wherein the opening is substantially straight.

1 28. The battery of claim 19, wherein the opening is curved.

1 29. The battery of claim 19, wherein the surface defines openings symmetrically
2 positioned in the housing.

1 30. The battery of claim 19, wherein the battery is a button cell, and the housing
2 comprises a cathode can having the surface.

1 31. The battery of claim 30, wherein the opening extends radially from the center of
2 the cathode can.

1 32. The battery of claim 30, wherein the cathode can defines openings
2 symmetrically positioned in the cathode can.

1 33. The battery of claim 30, wherein the surface defines between 4 and 12 openings
2 symmetrically positioned and extending radially from the center of the housing.

1 34. The battery of claim 30, wherein the surface defines between 8 and 12 openings
2 symmetrically positioned and extending radially from the center of the housing.

1 35. The battery of claim 30, wherein the cathode can defines rows, each row
2 comprising multiple, collinear elongated openings.

1 36. The battery of claim 35, wherein the cathode defines between 4 and 12 rows
2 symmetrically positioned and extending radially from the center of the housing.

1 37. The battery of claim 36, wherein each row comprises between two and four
2 elongated openings.

1 38. The battery of claim 35, wherein the cathode defines between 5 and 8 rows
2 symmetrically positioned and extending radially from the center of the housing.

1 39. The battery of claim 38, wherein each row comprises between two and four
2 elongated openings.

1 40. The battery of claim 19, wherein the surface defines rows, each row comprising
2 multiple elongated openings.

1 41. A metal-air battery capable of generating a Global System for Mobile pulse
2 voltage greater than about 1.0 volt in less than about 30 seconds.

1 42. The metal-air battery of claim 41, capable of generating the pulse voltage in less
2 than 20 seconds.

1 43. The metal-air battery of claim 41, capable of generating the pulse voltage in less
2 than 10 seconds.

1 44. The metal-air battery of claim 41, capable of generating the pulse voltage in less
2 than 5 seconds.

1 45. The metal-air battery of claim 41, capable of generating the pulse voltage
2 essentially instantaneously.

1 46. The metal-air battery of claim 41, wherein battery comprises a housing defining
2 an elongated opening that is not a louver.

1 47. A metal-air battery capable of undergoing a Global System for Mobile 900
2 simulation without dropping below about 1.0 volt for at least about 10 hours.

1 48. The battery of claim 47, capable of undergoing the simulation for at least about
2 12 hours.

1 49. The battery of claim 47, capable of undergoing the simulation for at least about
2 14 hours.

1 50. The battery of claim 47, wherein battery comprises a housing defining an
2 elongated opening that is not a louver.

1 51. The battery of claim 1, wherein the flux is elongated.

1 52. The battery of claim 1, wherein the battery is a cylindrical battery.

1 53. The battery of claim 14, wherein the battery is a cylindrical battery.

1 54. The battery of claim 19, wherein the battery is a cylindrical battery.

1 55. A battery cartridge, comprising:

2 a casing;
3 a battery in the casing, the battery comprising an elongated opening; and
4 a slide moveably engaged with the casing, the slide comprising an elongated opening
5 alignable with the elongated opening of the battery.

1 56. The cartridge of claim 55, wherein
2 the slide is moveable between a first position in which the opening of the slide is
3 aligned with the opening of battery, and a second position in which the opening of the slide is
4 misaligned with the opening of battery.

1 57. The cartridge of claim 56, wherein
2 the slide is further moveable to a third position in which the opening of the slide is
3 partially aligned with the opening of the battery.

1 58. The cartridge of claim 55, wherein the casing has a prismatic shape.

1 59. The cartridge of claim 58, wherein the casing has the shape of a rectangular
2 prism.

1 60. The cartridge of claim 55, wherein the battery has a rectangular cross section.

1 61. The cartridge of claim 55, wherein the battery has a triangular cross section.

1 62. The cartridge of claim 1, wherein the battery is a metal-air battery.

1 63. An electrochemical power source, comprising:
2 a metal-air battery system including an elongated opening and air control member
3 arranged for relative sliding motion to variably cover the opening for controlling exposure to
4 an oxygen-containing environment.

1 64. A battery cartridge, comprising:
2 a casing;
3 a battery in the casing, the battery comprising:

4 a cathode having a first side and a second side,
5 a first layer disposed adjacent to the first side of the cathode, the first layer
6 being electrically-insulating;
7 an anode disposed adjacent to the first layer; and
8 a second layer disposed adjacent to the second side of the cathode, the second
9 layer being air-permeable and liquid-impermeable and defining an exterior surface of the
10 battery; and
11 a slide moveably engaged with the casing, the slide defining an elongated opening.

65. The battery of claim 64, wherein the battery is a metal-air battery.

66. The battery of claim 64, wherein the cathode has a substantially rectangular
cross section.

67. The battery of claim 64, wherein the cathode has a substantially square cross
section.

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